

Work Order ID 138661

November 06, 2015 1:47:01 PM

U/R

138661

Page 1

Item ID: D350-748-203

Accept

N900040100

Setup Start *NS1*

Revision ID: URF 15-561

Item Name: AS350 / AS355 Stainless Steel Aft Crosstube

Stop *NS2*

Start Date: 11/6/2015 Start Qty: 1.00

1

Cust Item ID:

Required Date: 11/27/2015 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan:

SU

Date: 11/11/10

Tooling:

Date:

Run Start *NR1*

QC:

Date:

SPC (Y/N):

Date:

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr								
D350-748-243	A U/R OK	Q. 15/11/10	0.00	6					

100

Document Control

0.00

0.00

MCS 15-11-26

100

DOCUMENT CONTROL

DC

Memo

0.00

Doc.Control -USB or Paperwork

Photocopy bluefile & type labels per PPPD350-748-201 CHG001

110

0.00

110

BENDING MACHINE - CROSSTUBES

CNC Bend 2

Memo

0.00

CNC Alpha 160 Bender

Bend tube as per Dwg D350-748-243 using CNC bender program D350A and

Folio FT

*****UNDER BEND .225" PER SIDE*****

****USE (4) DT9824 SHIM BLOC TO CHECK STRAIGHTNESS****

NW 15-11-13

D350-748-203/138661

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____	
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐							
		OTHER : _____							

Work Order ID 138661

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November 06, 2015 1:47:01 PM

Item ID: D350-748-203 Accept *N900040100* Setup Start *NS1*
 Revision ID: URF 15-561 Stop *NS2*
 Item Name: AS350 / AS355 Stainless Steel Aft Crosstube
 Start Date: 11/6/2015 Start Qty: 1.00 *1* Cust Item ID:
 Required Date: 11/27/2015 Req'd Qty: 1.00 *1* Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start *NR1*
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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120		0.00							
-----	--	------	--	--	--	--	--	--	--

120

Crosstubes

Crosstubes

Memo

VERIFY CROSSTUBE DIMENSIONS AS PER DWG

Handwritten: L/A
DAS
9
9-89 15-11-20

127	QC15- Crosstube Dimensional Check	0.00							
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127

QC

Quality Control

Memo

MARK CUT LINES

Handwritten: 9-89 03 DAS

Handwritten: 15-11-16

128		0.00							
-----	--	------	--	--	--	--	--	--	--

128

Crosstubes

Crosstubes

Memo

CUT TUBE AT HEIGHT ON FAI SHEET

VERF HEIGHT 31.35 BY QC 15 LEVEL INSPECTOR EB

VERF TWIST 1.093 BY QC15 LEVEL INSPECTOR EB

Handwritten: BL 15/11/16

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					

Root Cause				FAULT CATEGORY			
Environment ☐	☐	No Re-verification ☐	☐	Pressure/Forced ☐	☐	Temperature/Cure ☐	☐
Design ☐	☐	Operator ☐	☐	Bending ☐	☐	Set-up ☐	☐
Doc/Data ☐	☐	Offset/Setup ☐	☐	Centre Not Concentric ☐	☐	BOM/Route ☐	☐
Equip/Tooling ☐	☐	Supplier ☐	☐	Cracks ☐	☐	Broken/Damage/Defect ☐	☐
Handling/Pre ☐	☐	Training ☐	☐	Crimp/Kink/Ripple/Wave ☐	☐	Inspection Incomplete/Unqualified ☐	☐
Material ☐	☐	Use for Testing ☐	☐	Cuffs ☐	☐	Contamination ☐	☐
Internal Transport ☐	☐	Poor Information ☐	☐	Crushing ☐	☐	Countersink ☐	☐
Tribal Knowledge ☐	☐	Rushing ☐	☐	Heat Treat ☐	☐	Cut Too Short ☐	☐
LOA ☐	☐	Product Improvement ☐	☐	Wave/Twist in Tube ☐	☐	Instructions Incomplete/Unclear ☐	☐
Substation ☐	☐	Process Improvement ☐	☐	Marks/Chatter ☐	☐	Drill Holes ☐	☐
Past Expiry Date ☐	☐	Manufacturing Process ☐	☐	OTHER : _____			
Misidentified ☐	☐	Past Due ☐	☐				

Work Order ID 138661***138661***

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Item ID: D350-748-203

Accept

N900040100Setup Start ***NS1***

Revision ID: URF 15-561

Item Name: AS350 / AS355 Stainless Steel Aft Crosstube

Stop ***NS2***

Start Date: 11/6/2015 Start Qty: 1.00

1

Cust Item ID:

Required Date: 11/27/2015 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130	Crosstubes	0.00							
130									
Crosstubes	Memo	0.00							
Crosstubes	2- Drill Tube as per Dwg D350-748-243 Using DT8876 Drill Jigs, Set-up drill table as per QSI 010								
	3 -Deburr								
	4- Engrave Part # and Batch # as per Dwg D350-748-243								
	5-Remove all marks from tube within limits of D350-748-243								
140	QC6- Inspect dimensions to drawing	0.00							
140									
QC	Memo	0.00							
Quality Control									

QC5
DAS 15-11-20
9
9-89

① 15-11-20

DAS
9
9-89

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					

Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐				FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐							
				OTHER : _____							

Work Order ID 138661***138661***

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Item ID: D350-748-203 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: URF 15-561 Stop ***NS2***
Item Name: AS350 / AS355 Stainless Steel Aft Crosstube
Start Date: 11/6/2015 Start Qty: 1.00 ***1*** Cust Item ID:
Required Date: 11/27/2015 Req'd Qty: 1.00 ***1*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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174	Outsource process - NDT per QSI038 4.1	0.00							
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174

Outsource2

Memo

0.00

Outsource process - NDT

ISSUE P/O TO ACCUREN: 30553CL NOV 23 2015 1

176	Receive & Inspect for Damage & Mat'l Certs	0.00							
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176

Packaging

Memo

0.00

Packaging

1X SD15-11-23

178	QC5- Inspect part completeness to step on W/O	0.00							
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178

QC

Memo

0.00

Quality Control

1 DEC 03 2015DAS
38
9-89

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐							
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____				
Description Work Order Deviation				Disposition							
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐		FAULT CATEGORY		Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐		Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐		Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐	
		OTHER : _____									

Work Order ID 138661

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Item ID: D350-748-203 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: URF 15-561 Stop ***NS2***
 Item Name: AS350 / AS355 Stainless Steel Aft Crosstube
 Start Date: 11/6/2015 Start Qty: 1.00 ***1*** Cust Item ID:
 Required Date: 11/27/2015 Req'd Qty: 1.00 ***1*** Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180	SprayPaint	0.00				1			DAS 41 9-89 15-11-24
180									
SprayPaint	Memo	0.00							
Spray Painting	1-Prime inside and out crosstube as per QSI 005 4.2 BATCH: <u>133084</u>								
	2-Paint Outside of Tube as per Dart QSI 005 4.2 BATCH: <u>133325</u>								
190	QC14- Inspect Spray Paint	0.00				1			DAS 38 9-89 DEC 03 2015
190									
QC	Memo	0.00							
Quality Control	Then, Wrap in plastic bag to protect from scratches								

DQA:

Date:

16/02/09

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed:

Date:

16/02/05

Work Order update only ☐

Work Order: <u>138661</u> Part No. <u>0350-748-203</u> NCR No. <u>16-5566</u>	DISPOSITION Rework ☒ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☒ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☒ Quality ☐ Other ☐		
Date: <u>15/11/06</u>	Step #: <u>180</u>	QTY Effective: <u>1</u>		MRB (QSI042) Approval DAS 12 9-89 <u>15/11/06</u>
Description Work Order Deviation		Disposition		
<u>USE AXALTA PRE-TREATMENT PER QSI 005</u>		<u>AXALTA 132055 Cleaner</u> <u>BIN 132520</u> <u>AXALTA 230S Adhesion Promoter</u> <u>BIN 132474</u>		Completed By DAS <u>41</u> 9-89 <u>15-11-24</u> Lead hand / Supervisor Approval Verification DAS <u>9</u> 9-89 <u>16-01-19</u> QC/QA Coordinator DAS <u>9</u> 9-89 <u>16-01-19</u>
Root Cause		FAULT CATEGORY		
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ ☒ Product Improvement Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ ☒ Part Moved ☒ Drawing ☒ Finish Misread ☐ Turning Sequence ☐		
		OTHER :		

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					

Root Cause				FAULT CATEGORY			
Environment	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐
Design	☐	Operator	☐	Bending	☐	Set-up	☐
Doc/Data	☐	Offset/Setup	☐	Centre Not Concentric	☐	BOM/Route	☐
Equip/Tooling	☐	Supplier	☐	Cracks	☐	Broken/Damage/Defect	☐
Handling/Pre	☐	Training	☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified	☐
Material	☐	Use for Testing	☐	Cuffs	☐	Contamination	☐
Internal Transport	☐	Poor Information	☐	Crushing	☐	Countersink	☐
Tribal Knowledge	☐	Rushing	☐	Heat Treat	☐	Cut Too Short	☐
LOA	☐	Product Improvement	☐	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear	☐
Substation	☐	Process Improvement	☐	Marks/Chatter	☐	Drill Holes	☐
Past Expiry Date	☐	Manufacturing Process	☐	OTHER :			
Misidentified	☐	Past Due	☐				

Work Order ID 138661

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Item ID: D350-748-203 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: URF 15-561 Stop ***NS2***
Item Name: AS350 / AS355 Stainless Steel Aft Crosstube
Start Date: 11/6/2015 Start Qty: 1.00 ***1*** Cust Item ID:
Required Date: 11/27/2015 Req'd Qty: 1.00 ***1*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
220	Pick Kit	0.00							
220									
Packaging	Memo	0.00							NOV 26 2015
Packaging									DAS 28 9-89
230	QC4- 100% Inspect kits for completeness	0.00							
230									
QC	Memo	0.00							DAS 27 9-89
Quality Control									16/1/19
240	Packaging	0.00							
240									
Packaging	Memo	0.00							DAS 27 9-89
Packaging	Identify and pack for shipping as per PPPD350-748-203								DAS 28 9-89
	Location: <u>FG 35</u>								
	PPP Rev: _____								

JAN 19 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval 		
Description Work Order Deviation				Disposition					
								Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	

Root Cause				FAULT CATEGORY									
Environment	☐	Design	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐	Power Loss/Surge	☐	Positioned Wrong	☐
				Operator	☐	Bending	☐	Set-up	☐	Folio/Program	☐	Outside Dimensions	☐
				Offset/Setup	☐	Centre Not Concentric	☐	BOM/Route	☐	Grain	☐	Over/Under tolerance	☐
				Supplier	☐	Cracks	☐	Broken/Damage/Defect	☐	Weld	☐	Part Incorrect	☐
				Training	☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified	☐	Wrong Stock Pulled	☐	Part Lost/Missing	☐
				Use for Testing	☐	Cuffs	☐	Contamination	☐	Out of Sequence	☐	Part Moved	☐
				Poor Information	☐	Crushing	☐	Countersink	☐	Off-set	☐	Drawing	☐
				Rushing	☐	Heat Treat	☐	Cut Too Short	☐	Mislabeled	☐	Finish	☐
				Product Improvement	☐	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear	☐	Fit/Function	☐	Misread	☐
				Process Improvement	☐	Marks/Chatter	☐	Drill Holes	☐	Misaligned/off center	☐	Turning Sequence	☐
				Manufacturing Process	☐	OTHER : _____							
				Past Due	☐								

Work Order ID 138661

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Item ID: D350-748-203

Accept

N900040100Setup Start ***NS1***

Revision ID: URF 15-561

Item Name: AS350 / AS355 Stainless Steel Aft Crosstube

Stop ***NS2***Start Date: 11/6/2015 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 11/27/2015 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

250

QC21- Final Inspection - Work Order Release

0.00

250

QC

Memo

0.00

Quality Control

MLJ

JAN 19 2016

MLJ

JAN 19 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____		
Description Work Order Deviation				Disposition					

Root Cause				FAULT CATEGORY			
Environment ☐	☐	No Re-verification ☐	☐	Pressure/Forced ☐	☐	Temperature/Cure ☐	☐
Design ☐	☐	Operator ☐	☐	Bending ☐	☐	Set-up ☐	☐
Doc/Data ☐	☐	Offset/Setup ☐	☐	Centre Not Concentric ☐	☐	BOM/Route ☐	☐
Equip/Tooling ☐	☐	Supplier ☐	☐	Cracks ☐	☐	Broken/Damage/Defect ☐	☐
Handling/Pre ☐	☐	Training ☐	☐	Crimp/Kink/Ripple/Wave ☐	☐	Inspection Incomplete/Unqualified ☐	☐
Material ☐	☐	Use for Testing ☐	☐	Cuffs ☐	☐	Contamination ☐	☐
Internal Transport ☐	☐	Poor Information ☐	☐	Crushing ☐	☐	Countersink ☐	☐
Tribal Knowledge ☐	☐	Rushing ☐	☐	Heat Treat ☐	☐	Cut Too Short ☐	☐
LOA ☐	☐	Product Improvement ☐	☐	Wave/Twist in Tube ☐	☐	Instructions Incomplete/Unclear ☐	☐
Substation ☐	☐	Process Improvement ☐	☐	Marks/Chatter ☐	☐	Drill Holes ☐	☐
Past Expiry Date ☐	☐	Manufacturing Process ☐	☐	OTHER : _____			
Misidentified ☐	☐	Past Due ☐	☐				

Picklist Print

November 06, 2015 1:47:06 PM

Page 1

Work Order ID: 138661

138661

Parent Item: D350-748-203

D350-748-203

Parent Item Name: AS350 / AS355 Stainless Steel Aft Crosstube

Start Date: 11/6/2015

Required Date: 11/27/2015

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP REV:A 15.03.23 NEW ISSUE DD VERF;JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D350-748-243TRN		Manufactured	No				Each	8.0000		1			
D350-748-243TRN									**				
Crosstube Installation, High Aft													

PSC 15/11/13

Location	Loc Qty	Loc Code
LG003	8	
135163	1	
135164	1	
135165	1	
135166	1	
135167	1	
135168	1	
135169	1	
135170	1	

D3502-1

Manufactured No

D3502-1

Support

Each 28.0000

2

DAS
41
9-89

15-11-27

Location	Loc Qty	Loc Code
LG052	28	
130349	28	

2

D5123-7

Manufactured No

D5123-7

Clamp Cushion

Each 74.0000

2

DAS
41
9-89

15-11-27

Location	Loc Qty	Loc Code
LG052	74	
131194	16	
133492	12	
136671	26	
137766	20	

2

Picklist Print

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Page 2

Work Order ID: 138661

138661

Parent Item: D350-748-203

D350-748-203

Parent Item Name: AS350 / AS355 Stainless Steel Aft Crosstube

Start Date: 11/6/2015

Required Date: 11/27/2015

Start Qty: 1.00

Required Qty: 1.00

AETC-1032

Purchased

No

Each

20.0000

1

DAS

AETC-1032

Insert

**

41

9-89

15-12-2

2 → 1 scrap

Location

Loc Qty

Loc Code

ST547

20

m133002

20

NAS1149C0363R

Purchased

No

Each

1,068.000

1

DAS

NAS1149C0363R

Washer

**

41

9-89

15-12-2

Location

Loc Qty

Loc Code

FP001

31

114742

31

GA

506

m133077

506

ST260a

494

m133077

494

ST271

37

m132763

37

MS21920-20

Purchased

No

Each

157.0000

2

DAS

MS21920-20

Clamp

**

41

9-89

15-11-27

Location

Loc Qty

Loc Code

FG

2

122254

2

LG050

25

m133483

25

LG056

130

m128650

13

m132675

67

m133134

50

2

Picklist Print

November 06, 2015 1:47:06 PM

Page 3

Work Order ID: 138661

138661

Parent Item: D350-748-203

D350-748-203

Parent Item Name: AS350 / AS355 Stainless Steel Aft Crosstube

Start Date: 11/6/2015

Required Date: 11/27/2015

Start Qty: 1.00

Required Qty: 1.00

MS51958-63

Purchased

No

Each

41.0000

1

MS51958-63

Screw

DAS
41
8-11
9-89

15-12-2

Location

Loc Qty

Loc Code

ST273

41

m131886

41

NAS1149D0563J

Purchased

No

220

Each

1,227.000

8

8

NAS1149D0563.J

Washer

12-23-12

Location

Loc Qty

Loc Code

GA

53

m125807

53

ST260a

928

m130799

63

m132035

55

m132256

10

m133134

300

m133363

500

ST269

227

m128257

156

m132677

71

ST271

19

m131026

19

NOV 26 2015

DAS
27
9-89

DAS
28
9-89

Picklist Print

November 06, 2015 1:47:06 PM

Page 4

Work Order ID: 138661

138661

Parent Item: D350-748-203

D350-748-203

Parent Item Name: AS350 / AS355 Stainless Steel Aft Crosstube

Start Date: 11/6/2015

Required Date: 11/27/2015

Start Qty: 1.00

Required Qty: 1.00

MS21042L4

Purchased

No

220

Each

2,344.000

24

24

MS21042I 4

Locknut

DAS

6

9-89

NOV 26 2015

DAS
27
9-89

Location

Loc Qty

Loc Code

FP001

2

m124231

2

GA

67

m127813

67

ST260a

138

m130799

56

m131803

6

m132262

76

ST303

1968

m133363

1968

ST305

169

m128300

8

m130388

7

m130922

97

m132123

56

m133316

1

DAS
28
9-89

24

Picklist Print

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Page 5

Work Order ID: 138661

138661

Parent Item: D350-748-203

D350-748-203

Parent Item Name: AS350 / AS355 Stainless Steel Aft Crosstube

Start Date: 11/6/2015

Required Date: 11/27/2015

Start Qty: 1.00

Required Qty: 1.00

MS21042L5

Purchased

No

220

Each

473.0000

4

4

MS21042L5

6
9-89

Nut

Location

Loc Qty

Loc Code

DAS

GA

146

28

m127813

146

9-89

ST303

79

m132677

79

ST304

200

m133363

200

ST305

48

m127813

19

m131340

21

m132123

8

AN4-41A

Purchased

No

220

Each

287.0000

8

8

AN4-41A

DAS
6
9-89

DAS
28
9-89

Bolt

Location

Loc Qty

Loc Code

ST312A

238

m130726

8

m132189

130

m133483

100

ST342

49

m130716

49

DAS
27
9-89

NOV 26 2015

Picklist Print

November 06, 2015 1:47:06 PM

Page 6

Work Order ID: 138661

138661

Parent Item: D350-748-203

D350-748-203

Parent Item Name: AS350 / AS355 Stainless Steel Aft Crosstube

Start Date: 11/6/2015

Required Date: 11/27/2015

Start Qty: 1.00

Required Qty: 1.00

D3501-1

Manufactured No

220

Each

419.0000

16

16

D3501-1

Bushing

DAS

6

~~9-89~~

DAS

28

9-89

Location

Loc Qty

Loc Code

ST039

112

130742

14

135919

98

ST046

1

125925

1

ST051A

306

135918

306

16

NAS1149D0463J

Purchased

No

220

Each

5,204.000

32

32

NAS1149D0463.J

WASHER

DAS

6

~~9-89~~

DAS

28

9-89

Location

Loc Qty

Loc Code

GA

626

M129390

41

M132035

585

ST260a

3136

~~M133284~~

1636

M133316

1500

ST269

1442

M129682

47

M130799

371

M132317

101

M132677

888

M133077

35

32

NOV 26 2015

Picklist Print

November 06, 2015 1:47:06 PM

Page 7

Work Order ID: 138661

138661

Parent Item: D350-748-203

D350-748-203

Parent Item Name: AS350 / AS355 Stainless Steel Aft Crosstube

Start Date: 11/6/2015

Required Date: 11/27/2015

Start Qty: 1.00

Required Qty: 1.00

AN5-32A

Purchased

No

220

Each

219.0000

4

4

AN5-32A

Bolt

**

DAS

6

9-89

DAS

28

9-89

NOV 26 2015

DAS

27

9-89

LocationLoc QtyLoc Code

ST299A

180

m132857

30

m133323

150

ST336

32

m132536

32

ST337

7

m131139

7

D3500-1

Manufactured

No

220

Each

11.0000

4

4

D3500-1

Saddle

**

JAN 14 2016

DAS

6

9-89

DAS

28

9-89

DAS

27

9-89

LocationLoc QtyLoc Code

ST406

11

129373

10

131168

1

AN4-6A

Purchased

No

220

Each

662.0000

16

16

AN4-6A

BOLT

**

DAS

6

9-89

DAS

28

9-89

NOV 26 2015

DAS

27

9-89

LocationLoc QtyLoc Code

CA

143

M128403

43

M130851

100

ST325A

100

M133363

100

ST345

419

M128403

8

M133316

411

November 06, 2015 1:47:06 PM

Shop Packet Print

Page 7

Item	Qty -243	Part Number	Description
1	X	D350-748-243	CROSSTUBE ASSEMBLY (AS 350/355 HI AFT)
2	1	D6021-125	CROSSTUBE
3	2	D3502-1	SUPPORT
4	2	D5123-7	CLAMP CUSHION
5	1	AETC-1032	INSERT
6	2	MS21920-20 OR MS21920-21/-22	CLAMP (PER DART SPEC. M-MS21920-20/-21/-22)
7	1	NAS1149C0363R	WASHER (OR AN960C10)
8	1	NAS1635-3-8	SCREW (OR MS51958-63)
9	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6021-125
FINISHED LENGTH AFTER TURNING = 124.70±0.06 (AFTER BENDING/TRIMMING = 122.70 REF)
- 2) FINISH: PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCE: PER DART QSI 018 UNLESS OTHERWISE NOTED.
WALL THICKNESS ECCENTRICITY PER DART QSI 038 7.2
MIN. ALLOWABLE WALL IS -0.020 FROM NOMINAL
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: DART PART NUMBER "D350-748-243" AND BATCH NUMBER ON INSIDE OF CUFF
PER DART QSI 044 6.4 (VIBRATING STYLUS)
- 7) WEIGHT: 29.85 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE, EXCEPT FOR Ø0.290 HOLE.
- 9) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO CRACKING/CHIPPING/GROOVES.

TURNING

- 10) BLENDE OUT ALL EDGES FROM MACHINING LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH. NOTE: ALL HOLES ARE DRILLED AFTER BENDING.

BENDING

- 11) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES PER SIDE. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D. ON TOP HALF OF BEND, AND 8% ON BOTTOM HALF OF BEND.
- 12) MAX AMPLITUDE OF RIPPING ALONG BENT PORTION OF THE TUBE IS 0.030 (ZN A1-3)
- 13) MAX TWIST: WITH XTUBE LAYED FLAT ON SURFACE, THE DIFFERENCE BETWEEN CUFF HEIGHTS FROM THE SURFACE MAY BE NO LARGER THAN 0.38 (ZN C1-3).

ASSEMBLY

- 14) TO INSTALL D3502-1 SUPPORT: ABRASE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.02" TO 0.05" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 15) TORQUE CLAMPS 60 TO 80 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.

20151106

RELEASED

2015 MAR 18

ECN 15-547

UNDER REVIEW

15/14/LB

DRF 15-541

34 138661

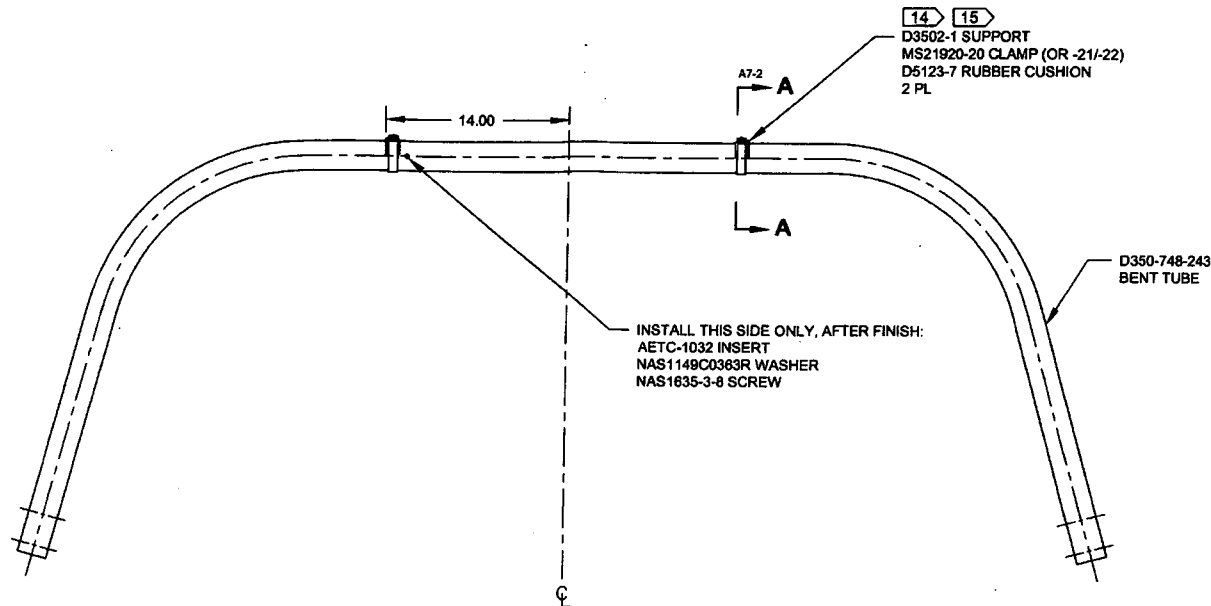
A	NEW ISSUE	CP	15.01.21
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED	A.P.		
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	15.01.21		

DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWING NO. D350-748-243	REV. A SHEET 1 OF 4
TITLE CROSSTUBE (AS 350/355 HI AFT)	SCALE NTS
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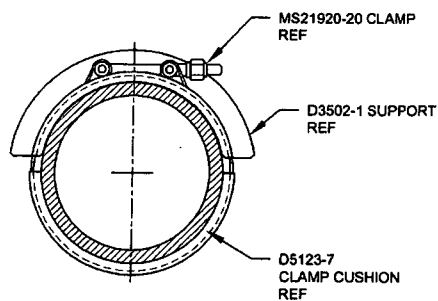
8 7 6 5 4 3 2 1

D
C
B
A

D
C
B
A



**D350-748-243
ASSEMBLY DETAIL**



SECTION A-A D4-2
SCALE 6X

UNDER REVIEW

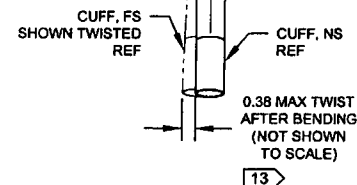
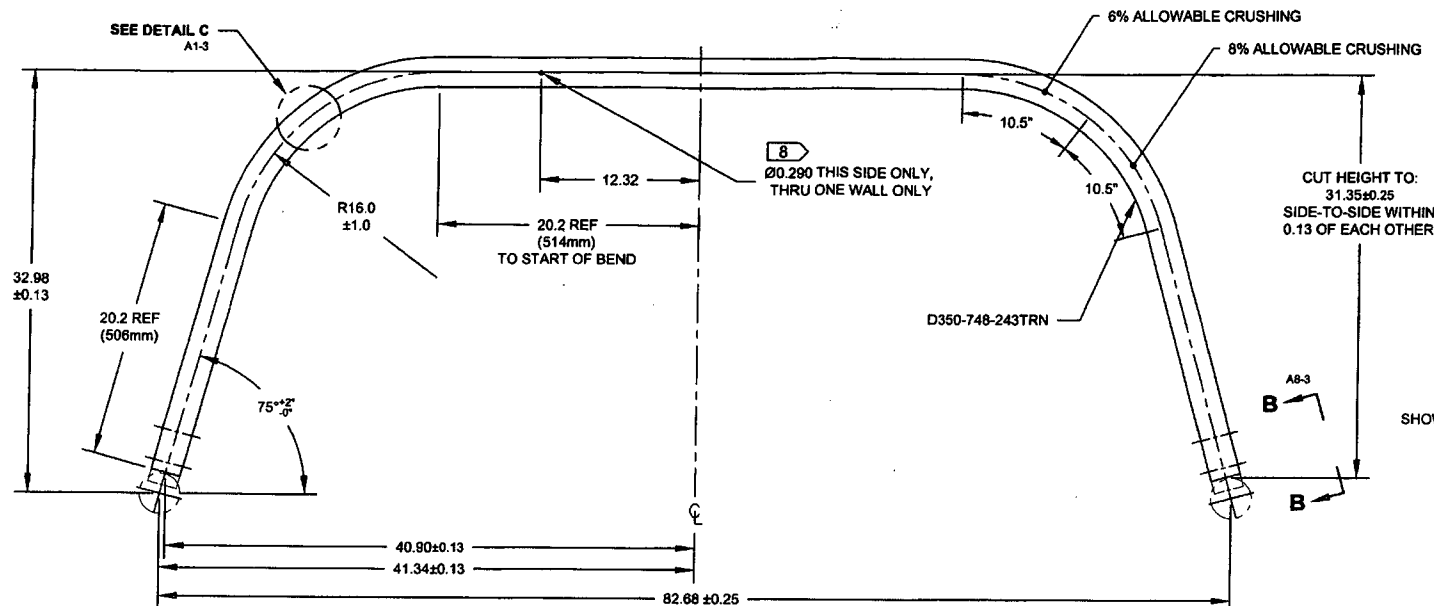
15/4/22

RELEASED

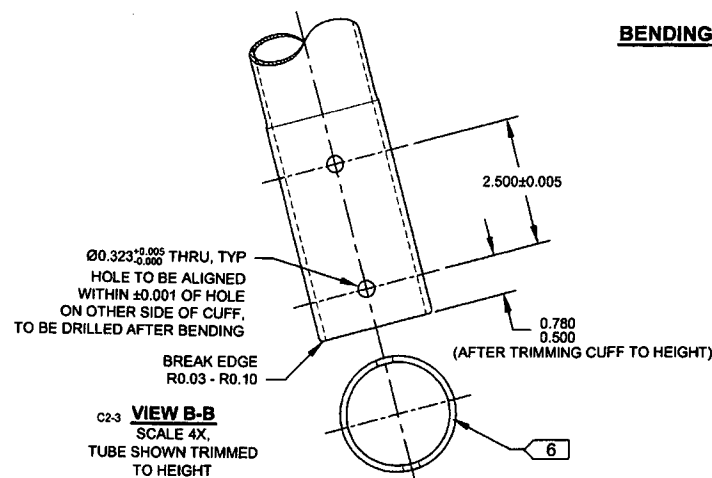
2015 MAR 18

DESIGN	AP	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AP		
CHECKED	A.P.	DRAWING NO.	REV. A
MFG. APPR.	[Signature]	D350-748-243	SHEET 2 OF 4
APPROVED	[Signature]	TITLE	SCALE
DE APPR.	[Signature]	CROSSTUBE (AS 350/355 HI AFT)	NTS
DATE	15.01.21	COPYRIGHT © 2015 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

8 7 6 5 4 3 2 1



D350-748-243
BENDING AND DRILLING DETAIL 11

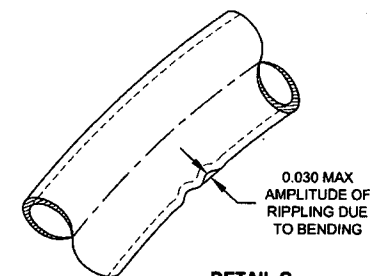


RELEASED

2015 MAR 18

UNDER REVIEW

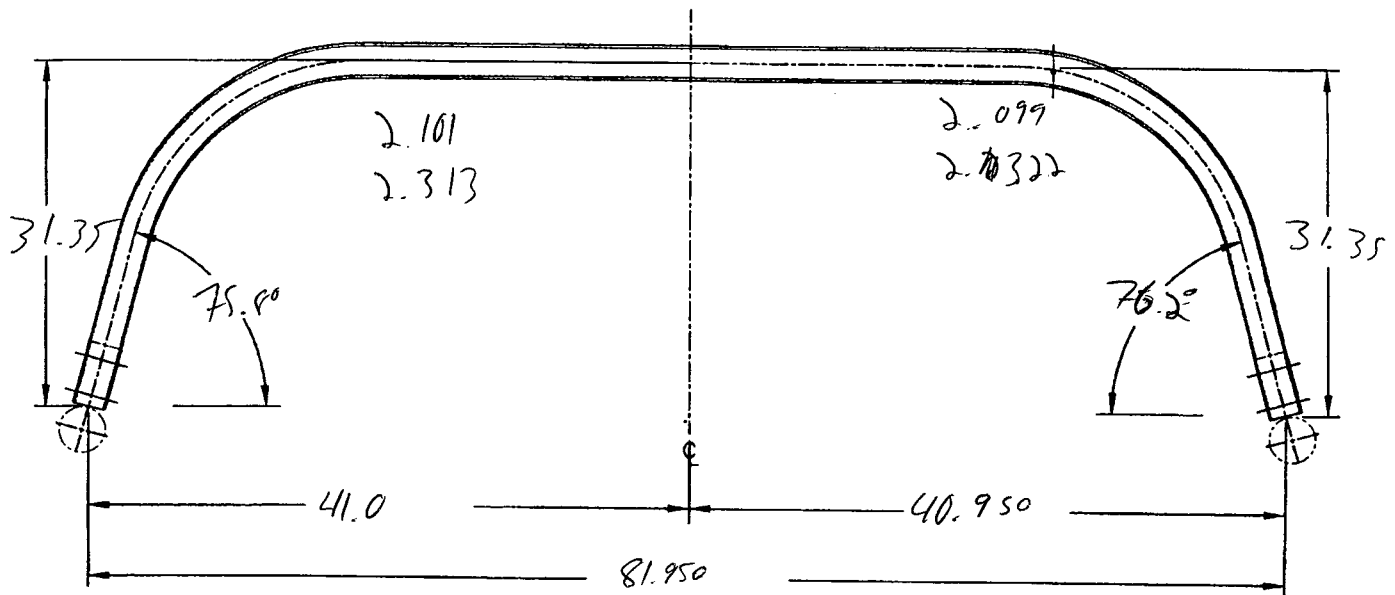
15.14.12



DESIGN	15.14.12	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	A.P.	DRAWING NO.	REV. A
CHECKED		D350-748-243	SHEET 3 OF 4
MFG. APPR.		TITLE	SCALE
APPROVED		CROSSTUBE (AS 350/355 HI AFT)	NTS
DE APPR.		COPYRIGHT © 2015 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	
DATE	15.01.21		

DART AEROSPACE LTD	Work Order: 138661
Description: Crosstube High Aft, SS (AS350/355)	Part Number: D350-748-203
Inspection Dwg: D350-748-243 Rev: A	Page 1 of 1

Required Dimension	Min	Max
Height	31.10	31.60
1/2 Span	40.77	41.03
Angle	75	77
Total Span	81.54	82.06
Bending Passes	7	--
Crushing	--	8%
Twist	--	0.38



	Side A	Side B
Bending Passes	28	28
Crushing	4.8%	5.1%
Comments		

QC15 Inspection	15-11-16
Date	

Rev	Date	Change	Revised by	Approved
A	15.09.09	New Issue	KJ	



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO30533**

Purchase Order Date 11/20/2015

PO Print Date 11/23/2015

Page Number 5 of 6

Order From :

SKYSERVICE
6120 MIDFIELD ROAD
MISSISSAUGA, ONTARIO L5P 1B1
CANADA

VC-SKY001

Ship To : DART AEROSPACE LTD

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Contact Name

Vendor Phone 905-678-5636

Ship To Contact

Ship To Phone

Ship Via: Delivered

Ship Acct:

Buyer

Chantal Lavoie

Customer POID

Customer Tax #

10127-2607

Terms

Net 30

Currency

CAD

FOB

FCA - (Free Carrier)

12

138661

D350-748-203
CROSSTUBE

11/23/2015

Yes

11/23/2015

SAME AS ABOVE

Line Total:

\$115.00

1.00

\$115.00

\$115.00

13 138662

D350-748-203
CROSSTUBE

11/23/2015

Yes

11/23/2015

SAME AS ABOVE

Line Total:

\$115.00

1.00

\$115.00

\$115.00

14 138714

D350-748-103
CROSSTUBE

11/23/2015

Yes

11/23/2015

SAME AS ABOVE

Line Total:

\$115.00

1.00

\$115.00

\$115.00

Note:

11/23/2015



skyservice Work Order Traveler

Sky Service F.B.O. Inc.

DOT APP 53-89 / EASA 145.7142 / BDA AMO 385

WO #: MWO26474	Customer: Dart Aerospace Ltd.	Dept: NDT YUL	Reference: 30533
Descr:	PN:	S/N:	Qty: 1
Make:	Model:	Reg:	A/C S/N:
TSN:	CSN:	TSO:	
Task: UNSCHEDULED			Sequence: 1

Work Required:

CARRY OUT NDT ON 13 CROSSTUBES AS PER PO30533

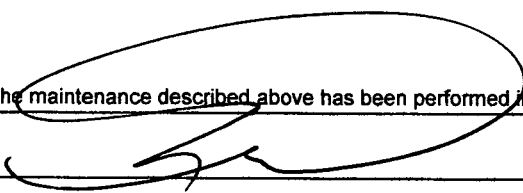
2 AFT CROSSTUBES, ITEM ID# D212-664-207 , WORK ORDERS ID# 136710, 138508

6 STAINLESS STEEL AFT CROSSTUBES, ITEM ID# D350-748-203 , WORK ORDERS ID# 138647, 138648, 138649, 138650, 138661, 138662

5 STAINLESS STEEL FWD CROSSTUBES, ITEM ID# D350-748-103 , WORK ORDERS ID# 137437, 137438, 138714, 137436, 137439

Action Taken:						Date:	Initial/Stamp:
LPI C/O IAW ASTM E-1417M13 NO CRACK FOUND PEN. ZL-56, MPO13600, UV M-20141, CLEANER SKC-S MPO13923 , DEV. MPO11715						NOV 20 2015	 
Description	Location	P/N	Qty	Batch	S/N Off	S/N On	

I certified that the maintenance described above has been performed in accordance with the applicable standard of airworthiness.

Signature: 	ACA/SCA Stamp 	Date: NOV 20 2015
Name: RAFIK MELIKIAN		

QA Closed:

Date:

WORK ORDER NON-CONFORMANCE / UPDATE

Work Order: 138661Part No. D 350-748-203

NCR No.

DISPOSITION

Rework ☒
 Scrap ☐
 Use-as-is ☐
 Suspected Unapproved ☐

Work Order update only ☐

AGAINST DEPARTMENT/PROCESS

Skid-tube ☐
 Machining ☐
 Thermoforming ☐
 Large Fab ☐

Cross tube ☐
 Small Fab ☐
 Finishing ☐
 Composite ☐

Water Jet ☐
 Prod. Eng. Coord. ☐
 Rec/Store/Packaging ☐
 Supplier ☐

Engineering ☐
 Quality ☐
 Other ☐

Date: 15.11.26

Step #:

QTY Effective:

Description Work Order Deviation

AETC-1032 INSERTS BREAKING ON INSTALLATION

DAS
9
9-89

Disposition

BASED ON ENG TESTING IT WAS
 FOUND THAT INSTALLATION IS MORE
 RELIABLE IF INSTALLATION PRESSURE (AIR
 HOSE) IS REGULATED TO 50 PSI
 AND INSTALLATION HOLE IS REAMED
 TO Ø 0.290 IN ACCORDANCE MANUFACTURERS
 INSTRUCTIONS. OPEN PAR TO ADD
 NOTE TO STEP # 200 WHICH READS
 "LIMIT AIR PRESSURE TO 50PSI WHEN
 INSTALLING AETC-1032 INSERT AND
 ONLY EXPAND INSERT ONCE"

MRB (QSI042) Approval

A.L.
15.11.26

Completed By

Lead hand / Supervisor
Approval VerificationQC / QA Coordinator
Approval

Root Cause

Environment ☐
 Design ☐
 Doc/Data ☐
 Equip/Tooling ☐
 Handling/Pre ☐
 Material ☐
 Internal Transport ☐
 Tribal Knowledge ☐
 LOA ☐
 Substation ☐
 Past Expiry Date ☐
 Misidentified ☐
 No Re-verification ☐
 Operator ☐
 Offset/Setup ☐
 Supplier ☐
 Training ☐
 Use for Testing ☐
 Poor Information ☐
 Rushing ☐
 Product Improvement ☐
 Process Improvement ☐
 Manufacturing Process ☐
 Past Due ☐

Pressure/Forced ☐
 Bending ☐
 Centre Not Concentric ☐
 Cracks ☐
 Crimp/Kink/Ripple/Wave ☐
 Cuffs ☐
 Crushing ☐
 Heat Treat ☐
 Wave/Twist in Tube ☐
 Marks/Chatter ☐

FAULT CATEGORY

Temperature/Cure ☐
 Set-up ☐
 BOM/Route ☐
 Broken/Damage/Defect ☐
 Inspection Incomplete/Unqualified ☐
 Contamination ☐
 Countersink ☐
 Cut Too Short ☐
 Instructions Incomplete/Unclear ☐
 Drill Holes ☐

Power Loss/Surge ☐
 Folio/Program ☐
 Grain ☐
 Weld ☐
 Wrong Stock Pulled ☐
 Out of Sequence ☐
 Off-set ☐
 Mislabeled ☐
 Fit/Function ☐
 Misaligned/off center ☐

Positioned Wrong ☐
 Outside Dimensions ☐
 Over/Under tolerance ☐
 Part Incorrect ☐
 Part Lost/Missing ☐
 Part Moved ☐
 Drawing ☐
 Finish ☐
 Misread ☐
 Turning Sequence ☐

OTHER:

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☒

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☒ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☒ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date : 16.01.19		Step #: 200		QTY Effective : ①			MRB (QSI042) Approval DAS 9 9-89 16.01.18		
Description Work Order Deviation				Disposition				Completed By DAS 10 9-89 16.01.19 Lead hand / Supervisor Approval Verification DAS 9 9-89 16.01.19 QC / QA Coordinator Approval DAS 9 9-89 16.01.19	
AETC-1032 inserts breaking on installation R.C. equipment, no air regulation on tool				had on work order to limit air pressure to 50 psi when installing AETC-1032 insert					
Root Cause-				FAULT CATEGORY					
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☒ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐				Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ ☒ Broken/Damage/Defect Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐					
				OTHER : _____					